INDEPENDENT

SESSIONAL PAPER 1962—3.

STATE OF WESTERN SAMOA

DEPARTMENT OF AGRICULTURE, FORESTS, AND FISHERIES

ANNUAL REPORT

for

1961

APIA, WESTERN SAMOA, 14 FEBRUARY 1962

PLANTERS' FRIEND

This is Scolia who help copra production by killing beetles!

N.C.P.
R.A.I.
M.M.

COMMONWEALTH MYCOLOGICAL
8 JUN 1962

DEPARTMENT OF AGRICULTURE, FORESTS, AND FISHERIES

13 February 1962.

The Hon. Asiata Lagolago, Minister of Agriculture, Forests, and Fisheries.

Sir,

ANNUAL REPORT 1961

In accordance with section 14 of the Agriculture, Forests, and Fisheries Ordinance 1959 I have the honour to submit herewith the Annual Report of the Department for the year 1961.

I have the honour to be, Sir,

Yours faithfully,

B. E. V. PARHAM, Director of Agriculture.

A C K N O W L E D G M E N T S

Like all Agricultural agencies, the Department of Agriculture in Western Samoa expects and receives much criticism, some adverse and destructive, some considered and constructive.

In assessing the value of such negative and positive advice and comment from any source whatsoever the Department must be guided largely by the measure of the demands made by producers on its services; and working, as it does, largely through the agency of their efforts and co-operation, must pursue a progressive but patient course of action. The absence in recent years of an active ~~and progressive~~ association of Planters qualified to advise, usefully criticise, and assist Government programmes of development is a ~~great~~ disadvantage to the Department!

The year 1961 began, not only with the most destructive atmospheric storm experienced for many years; but also with severe pruning and, in some cases, almost total amputation of essential items in Departmental estimates. Harried financially, and faced with the pressing business of restoring, as quickly as possible, the production of bananas and other export crops, and hampered by the implacable advances of banana diseases, coconut pests and other hostile factors, the Department was compelled to close its ranks, revise its essential services to growers, and to manage without the support and confidence, which informed public opinion and appreciation of its problems would give.

Consequently, it is with more than usual gratitude that recognition and appreciation can here be recorded of the continuing good-will and co-operation of increasing numbers of those people who are concerned with the better utilization and management of their lands, and with the vital work of increasing production of the food, the domestic and export crops of the country.

In the banana industry, this effort and this co-operation on the part of nearly 6,000 growers and of cartage and shipping contractors, inspectors and wharf operators, resulted in the total restoration of export production well before the end of the year. Similarly, progressive trends in the principal agricultural activities were experienced.

The circle of overseas friends and benefactors continued to enlarge especially in the fields of staff training and technical assistance, plant introduction, pest and disease control, and advice.

Through the personal interest of Mr P.S.Cadbury, C.B.E., a valuable scholarship was made available for an officer to take an advanced course in Tropical Agriculture. The Union Steamship Company, as a result of the effort of the Apia Manager, Mr D. Graham, and the Chairman of Directors, Mr H.H. Dobie, established a fund to provide two scholarships to be held annually in New Zealand by "graduates" of Avele Agricultural College. The South Pacific Commission made two grants which enabled two officers to undertake study tours in Fiji. The Commission also financed the travel costs of two Senior officers to attend international conferences and Technical Meetings.

The New Zealand Government continued its grant covering the development programme at Avele Agricultural College, as well as contributing half the cost of maintaining the College, - a generosity which enabled an additional 22 Western Samoan students to be maintained without cost to Government. Other overseas technical assistance came from the U.S.Department of Agriculture Plant Introduction Service; the Director of Agriculture, Fiji; the Director-General of Agriculture, New Zealand; the Department of Scientific & Industrial Research, New Zealand; and Messrs Fruit Distributors Ltd., Messrs Radley Bros. Ltd., and Messrs Turners & Growers Ltd. It is proper also to record the continued interest and

assistance of several local firms and individuals - the co-operation of the Customs, the Attorney General, the Health and other Departments, which are closely associated with the daily activities of the Department.

The Minister of Agriculture (Hon. Asiata Lagolago M.L.A.) who assumed office in February, has consistently guided the policy of the Department, and taken full personal interest in its many activities.

I am glad also to acknowledge with gratitude the continuing interest and advice of many people and especially of His Excellency the High Commissioner (Mr J.B. Wright), the Directors of Education (Messrs J.Leggat and C.J. Williams), in the work at Avele Agricultural College. Appreciation is recorded of the working of all staff of the Department in all Divisions - which has been of a high order.

Finally, and with regret, the unexpected passing of the previous Minister, the Hon. Tualaulelei Mauri M.L.A. must be mentioned. During his year of office he had, by his devotion to public and departmental affairs and problems, earned the respect and good-will, not only of the staff, but of all those who were associated with him in the daily responsibilities of advancing the economic development of the country! He is remembered as a strong and dedicated public servant and colleague.

%*%*%*%*%*%*%*%*%*%*%*%*%

"Afai ae le pa'ū le fua o le saito i le 'ele'ele ma pala ai, e tumau pea i le mea e tasi.

Ae afai e pala ona fua, ona fua mai ai lea o fua e tele."

TERRITORY OF WESTERN SAMOA

DEPARTMENT OF AGRICULTURE,
FORESTS & FISHERIES

ANNUAL REPORT : 1961

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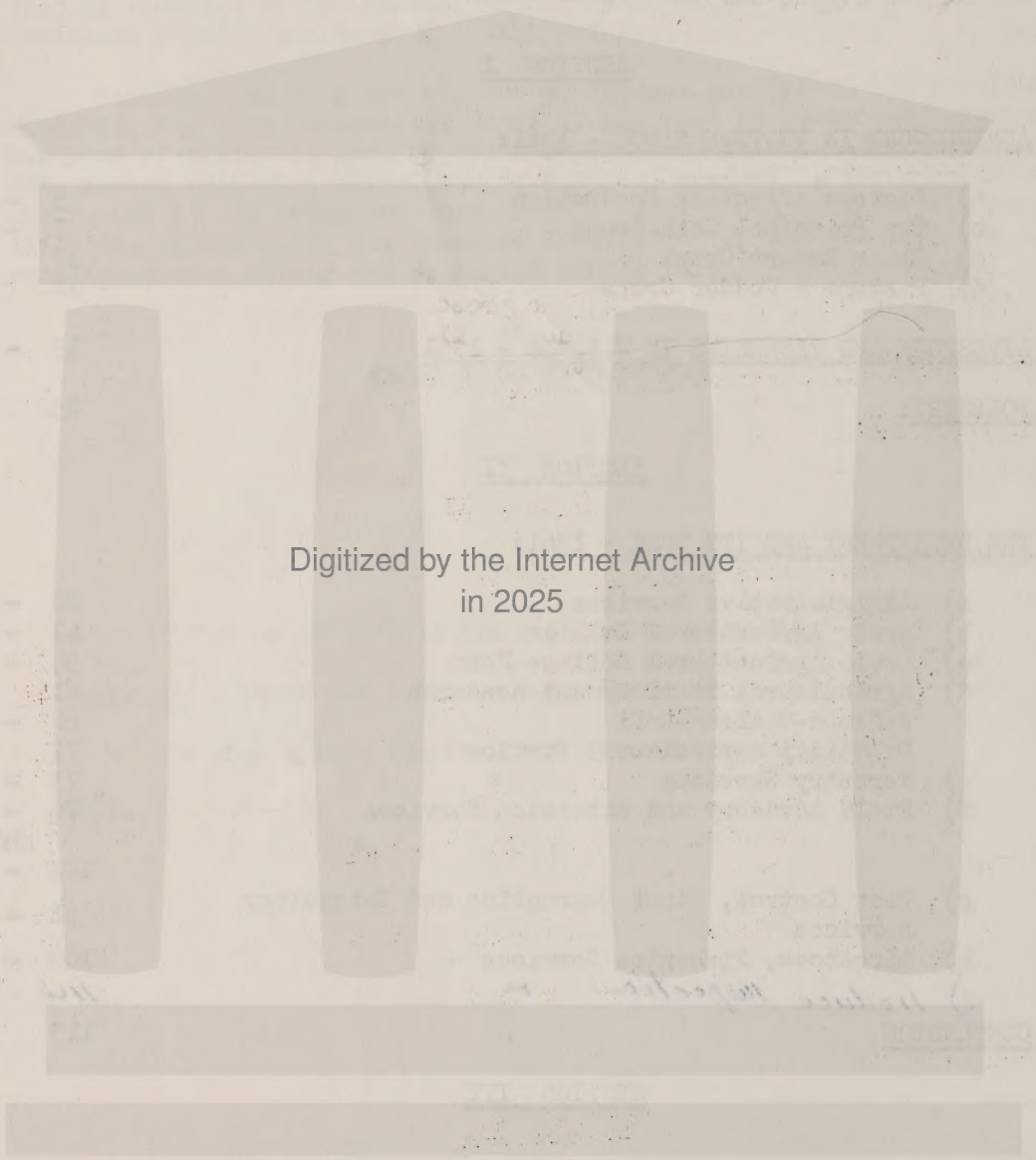

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TERRITORY OF WESTERN SAMOA

DEPARTMENT OF AGRICULTURE, FORESTS AND FISHERIES

ANNUAL REPORT FOR YEAR 1961

I. INTRODUCTION

1. Since, during 1961, a policy of regular press and radio releases has kept the public well informed on agricultural matters; and since there are some doubts that Annual Reports are read by more than a few interested people, there is justification for brevity in compiling this report. In previous years the aim has been to provide a complete and, at the same time, a concise comparative review of trends in agricultural production and of the work of the Department in the three fields of its statutory obligations and activities, viz. Agriculture, Fisheries and Forestry.

The need for economy, the limitations of staff and of time to compile, and maybe also to read, a detailed record have also been taken into account in the preparation of the present report. Politician, the Press and the public alike can and do at all times, obtain additional information merely by asking for it.

New Developments:

2. Some of the more important developments were:

a) the Report of the third Economic Development Committee and its confirmation of the priority which must be given to utilization of land and sea resources;

b) the almost total destruction of bearing banana plantation by severe storms in February;

c) severe damage to cocoa plantations resulting in the total loss of the small or winter crop;

d) the fall in prices for cocoa and copra and the decline in production of the latter;

e) the retrenchment of Departmental services as a result of economy measures, partly restored late in the year;

f) the full recovery of banana production before year's end as a result of sound cooperation and good will between growers and the Department;

g) offer of an advance in price for export bananas to be effective for the period August to December 1962;

h) payment of a deferred payment bonus to Banana Growers - totalling £13,680;

i) progress made in many districts with the control of Banana diseases, leaf-spot and bunchytop virus; and continuance of the fertilizer distribution scheme;

j) continued advance of bunchytop virus disease in areas where Departmental field work was curtailed unavoidably; and where growers cooperation was inadequate;

k) appointment of an Entomologist enabled the field work for control of coconut and other pests to be re-organised with effective results in many districts;

l) continuance of the biological control work - introduction, breeding and distribution of parasites of several crop pests;

m) visit of the FAO regional Plant Protection officer and the SPC Special Consultant on Plant Quarantine;

n) overseas training of staff - assisted by generous financial provision for travel grants and scholarships by Messrs Cadbury Bros., Union Steamship Coy., South Pacific Commission, U.S. Educational Extension Agency, and N.Z. Government. Altogether five serving officers undertook overseas training courses and two students were maintained at Agricultural Colleges in New Zealand;

o) two senior officers attended international technical conferences and meetings viz -

Tenth Pacific Science Congress - Pest Control
SPC Conference on Agricultural Extension & Advisory work
FAO Technical Conference on Coconut & Copra Production

All expenses in connection with two of these meetings were borne by the South Pacific Commission.

p) at Avele Agricultural College 22 students qualified for the Certificate of Agriculture and Animal Husbandry - Western Samoa 12, Cook Islands 6, Niue 2, American Samoa 2. All the 1960 graduates were usefully employed in Government services or in Western Samoa Trust Estates Corporation, two were awarded overseas scholarships for diploma courses in Horticulture and Animal Husbandry

Policy & Organisation:

3. There were no changes in Policy for Agriculture, Forestry or Fisheries services. The following ordinances of concern to Agriculture were passed:

Cocoa Export Ordinance
Cocoa Pests and Diseases Ordinance
Noxious Weeds Ordinance

4. Advances were achieved in the organization of departmental services, to expand opportunities for local staff to assume positions of senior status and responsibility - Appendix 2.

Altogether 22 local officers now hold senior positions of responsibility as controlling officers in charge of defined services in seven Technical divisions, seven Administrative divisions and four Headquarters and Development divisions. At the end of the year the Department was under-staffed in the professional grades.

SECTION I

AGRICULTURE IN WESTERN SAMOA - 1961

FACTORS AFFECTING PRODUCTION

5. Meteorological data for the year are at Appendix I. The gale force winds in March caused heavy losses of bananas and cocoa crops - adversely affected copra production. Market prices for cocoa and copra showed a downward tendency, banana prices remained unchanged.

6. Access and plantation roads were constructed and improved with some assistance in the way of subsidies administered by the Public Works Department. Surveys and reports were prepared by Departmental officers in support of recommendations made.

A fast new vessel capable of transporting over 1,200 cases of bananas per trip entered the fleet of banana carriers.

THE PRINCIPAL CASH CROPS

Bananas:

7. Export production for the year was as follows:

No. of Shipments	Cases exported	Value £S.	
		To growers	f.o.b. Export
34	560,156	294,082	644,133

In view of the widespread damage caused by the heavy storms experienced in February, the total export production for the year was very creditable to the growers. W.Savai'i was most heavily affected. Two districts - Lefaga and Falelatai - produced no export fruit on account of the destructive effects of bunchytop virus disease.

8. The comparative production from Savai'i and Upolu for the past two years was:

	1960	1961	
Upolu	363,584	438,515	cases
Savai'i	241,116	108,718	"

9. The following table compares district production for 1961 with that for 1960. Period December - November inclusive: (12 months)

District	1960	1961	Remarks
A. Savai'i:			
Faasaleleaga	121,191	54,845	Effects of Storm
Faganalo	31,636	20,922	"
W.Savai'i	82,218	32,951	"
B. Upolu:			
Aleisa/Lepalo	95,422	83,345	B/T disease and Storm.
S.E.Coast	76,503	135,701	
Safata	32,939	35,818	
Falealili	38,385	68,922	
Lefaga	798	-	Heavy B/T disease
E.Coast	69,038	74,080	
W.Coast	39,562	25,660	B/T disease
S.W.Coast	1,523	-	Heavy B/T disease
Fagaloa	16,336	17,989	

Rejects:

10. Total rejects at Apia for the year amounted to 9,177 cases: at Salelologa 965, at Fagamalo 628 and at W.Savai'i 258. Causes of rejection included immature and overmature fruit, mixed packing, scab and sap-stained fruit.

Diseases:

11. The bunchytop virus disease continued on its destructive way, checked only by the combined efforts of some cooperative growers with Departmental teams. In Falealili District the local authorities organised a Committee whose effective work has resulted in excellent control of the disease in that area. Because of poor cooperation of growers in other areas prosecutions were necessary under the Ordinance and 170 persons were fined a total of £305/10/-.

C O C O A

12. The export of cocoa beans was as follows:

Cocoa Beans (tons)				Shells	Tons	Total
1st grade	2nd grade	Nibs	Total	(tons)	All grades	Value £S.
2,094	1,178	181	3,453	192	3,645	685 500

Other data regarding cocoa exports are given at Appendices 4 & 5; and departmental services are described lower down (para 64)

13. During the year, 189 cocoa trading licences were issued and 26 persons were prosecuted for offences under the Ordinance, with fines totalling £78/10/-. For estimates of district cocoa plantings see Appendix 6.

COCONUTS AND COPRA

14. A survey of new coconut plantings carried out during the year, indicated considerable increases in all districts.

	Under 1 year Palms	2-6 years Palms	Bearing acres
Upolu	184,770	283,698	22,238
Savai'i	510,992	51,830	5,259
Total (acres =)	13,915	6,708	27,497

Details are at Appendix 6.

Copra Exports:

15. The export figures (tons) for 1961 were 88 tons less than for the previous year viz:

Grade H.A.D.	S.D.1.	S.D.2.	Tokelau (NZ)	Total (tons)
11,122	1,562½	1,228	120½	14,033

Other details are at Appendix 7.

There was a further increase i.e. 10 per cent in the proportion of first grade copra produced.

16. Trading licences issued were: Undried copra - 43; copra 178 - total fees £304 and 72 persons were fined a total of £218 for offences under the Ordinance.

OTHER EXPORT CROPS

17. Details of minor products exported are given at Appendix 8. District acreages of coffee and taro plantings are at Appendix 6.

PASTURE AND FODDER CROPS

18. Reference to the departmental work mainly at the Avele College Farm and Nafanua described below will provide information on the development of new and improved pasture crops. In general elsewhere stock owners continued to rely on natural or artificially induced pastures - comprising herbage of mixed palatability and nutritive value. Further plantings of Elephant grass on some estates were reported.

II LIVESTOCK AND FISHERIES IN W.SAMOA

Animal Imports and Exports:

19. The figures are at ~~Appendix 12.~~ para. 101

Livestock Population:

20. A livestock survey was undertaken during the year - many owners cooperating in making returns. From these a revised estimate has been made and is given at Appendix 13.

Animal Production : Beef & Pork:

21. By courtesy of the Director of Health the following figures are extracted from the report of the Meat Inspector (Mr K. Stunzner):

BEEF			PORK		
Number	Average Weight (lbs)	Total Weight (lbs	Number	Average Weight (lbs	Total Weight
2025	423	856,575	115	N.S.	N.S.

Of the total cattle: 1810 were slaughtered by W.S.T.E.C., 215 by private butchers; and it was estimated that an additional 75 head were killed in Savai'i.

22. Hides exported during the year : 1744.

23. Milk: No adequate figures on milk production are available other than those for the Dairy at Avele Agricultural College.

Poultry:

24. Local poultry producers continued to expand their flocks ~~and~~ with considerable success and were able to supply most of the local requirements thus reducing the need to import.

Fisheries Development:

25. There were no funds or facilities for fisheries work which was limited to further establishment of fresh water ponds and to observations on village fishing production and potential. At one village - operated pond 2,000 Tilapia were caught by rods on one occasion to supply a temporary shortage.

The Economic Development Committee recommended -

> "that Government make available to the Department of Agriculture vessels and equipment suitable for investigation and development of off-shore long-line fishing" (E.D.Report .17).

III FORESTRY IN W.SAMOA - 1961

No major developments were made in either the conservation or the utilization of forestry resources. Three operators continued to purchase and mill logs of exotic and indigenous species. Two supplied cases for bananas and other export produce.

The Economic Development Committee recommended -

(1) "that a policy on present forest use and reafforestation be made, with particular reference to water-catchment protection;

(2) that every encouragement be given to planters in the establishment of stands of forest trees in village areas." (Ec. Devpt. Report p.16).

The demand for seedlings from departmental nurseries was considerable. A Field Assistant has been assigned to expand village timber tree plantings.

SECTION II

THE DEPARTMENT AND ITS WORK - 1961

ADMINISTRATIVE SERVICES

26. The administrative(accounts, personnel, records) services of the Department are quite inadequately staffed. Work was maintained with difficulty only by the extra time and effort given by the Administrative officer and the staff. These services are organised in 7 divisions under the overall supervision of the Administrative officer (Mr E. Andrews) each division being the responsibility of a local officer. The principal officers are the Senior Accountant (Bananas) the Senior Clerk (Finance Records) the Staff Clerk, and the Accounting Clerk.

Staff:

Retirements and Appointments:

27. During the year 12 officers retired, were transferred or resigned and seven were appointed as replacements. Six new appointments in junior grades were approved.

	P.I.	F/A	Clerks	Teachers	Asst. Cook	Entomologist
Resigned	2	3	8	3	1	-
Appointed	2	8	9	-	-	1

At end of year there were 3 vacancies.

Leave and Overseas duty:

28. The Stores officer (Banana Shipping Division) was transferred summarily to Public Works Department, prior to going to New Zealand for a training course. As a key man, in a major commercial enterprise his departure created a distinct and serious problem. He was replaced by promotion within the staff.

29. The Director was on leave for ten weeks during the period September - November. During his stay in New Zealand he carried out a number of investigations and interviews in connection with various aspects of departmental work.

30. The following officers undertook overseas study courses:

Field Assistant	: Eti Tia'i	- S.P.C. grant to Fiji - Copra analysis
Sr. Field Asst.	: W. Meredith	- Cadbury Scholarship to Trinidad
Sr. Field Asst.	: J. Hellesoe	- U.S.E.E.A. grant to Hawaii - general field work
Farm Manager	: H. Treviranus	- S.P.C. grant to Fiji - animal husbandry.
Lab. Asst.	: Kesi Ale	U.S.E.E.A. - Hawaii in Pest Control

31. Three Senior officers attended technical meetings overseas:

a) 10th Pacific Science Congress - Hawaii
b) F.A.O. Technical Meeting on Coconuts - India
c) S.P.C. Conference on Agric. Extension Work - Rabaul.

Much valuable information was obtained and many continuing contacts made which will advance the future work of the Department. In the case of the last two mentioned meetings, the officers attended at the invitation of the South Pacific Commission which met all travel and other expenses.

Pulefa'atoaga:

32. The Agricultural officer responsible for supervising the work of these officers, notes his deep appreciation of the work and assistance provided by the Pulefa'atoaga and their Leoleo in 1961, especially the duties they have performed in assisting the Field staff and Produce Inspectors in their field survey work. In the beginning of October, Pulefa'atoaga meetings were arranged in each Pulefa'atoaga district, both Upolu and Savai'i in order to cut down expenditure. During these meetings several good points have been raised by them. These combined efforts makes things easier to compile different crop materials actually planted.

Because of the shortage of staff the production survey commenced early in October. The above reports indicate a large number of newly planted coconuts (actually in the soil) which marks 1961 as a record year since the re-establishment of the department. See Appendix 6.

Information Services:

33. Many officers made a special effort to provide radio talks on agricultural topics and many Press releases were prepared. Eight issues of "Laufasi Ola" Information Circular were issued to a growing demand from planters and teachers.

The Departmental permanent records and technical papers were checked and indexed for ease of reference.

Field Days & Exhibits:

34. A permanent exhibit of the economic productions of W.Samoa supported by charts and diagrams illustrating the agricultural industries and the diverse activities of the Department was established at Savalalo Building. Many field demonstrations were made in all districts and on agricultural stations where visitors were recorded, altogether 1227 persons attended.

Overseas Visitors:

35. There were many overseas visitors - several of whom were engaged in special investigations within the field of the Department's interests. These were assisted with staff, information and transport. Amongst these were:

His Excellency the Governor of American Samoa & party (twice)
Dean K. Ryerson - Berkley College of Agriculture
Mr A. Johnson F.A.O. Regional Plant Protection Officer
Mr B.A. O'Connor Sr. Entomologist Fiji and Special SPC Consultant on Plant Quarantine for South Pacific.

Boards and Committees:

36. The Director continued to be a member of the Land Board and of the Board of Trustees of WSTEC and attended all meetings held during his presence in Samoa. He and the Senior Agricultural officer were members of the Economic Development Committee.

The Director continued to be a member of the S.P.C. Research Council and was Chairman of the Avele Agricultural College Committee.

Transport and Equipment Control:

37. The efficiency and cost of departmental services were adversely affected by the operations and procedures of the Vehicle Pool; but every effort was made to economise on use of transport. The Department of Agriculture works largely in the field - in plantations and for long periods daily; it requires efficient four wheel drive vehicles and mobility which is not now available. The cost of the Department's transport vote has doubled since 1960.

38. Vehicles purchased from Banana Account funds and recorded as Assets in the Balance Sheet were taken over by the Vehicle Pool without financial adjustment and no decision is yet available.

The Avele Farm truck, essential to the working of the farm and the supply of rations for the 100 students in residence was taken over by the Pool - was damaged in a road accident and later released back to the College in an unserviceable condition. A replacement has been requested as a matter of urgency but no provision has been made.

39. In the absence of a Clerical officer who could be spared for duty as Transport officer - a Field Assistant has been assigned to the task of co-ordinating vehicle requisitions and maintaining liaison with the Vehicle Pool. This arrangement is unsatisfactory and uneconomic.

40. All Department farm equipment is regularly serviced and maintained in good order.

AVELE AGRICULTURAL COLLEGE IN 1961

41. Work at Avele Agricultural College was maintained as heretofore under the control of the Director who also is Chairman of the Committee. Development work continued but the construction of the Assistant Master's quarters was not completed by year's end. Details of the work in the College and on the Farm are given in the following paragraphs.

Union Steamship Coy. Scholarships:

42. The most important event of the year was the generous decision of the Union Steamship Company to provide two scholarships for graduate students from Avele - one for Samoa and one for New Zealand Territories. These will cover travel costs, and will maintain two students annually at an Agricultural College in New Zealand for the Diploma of Horticulture course. Mr H.H. Dobie, Managing Director of the Union Steamship Company visited Avele during November. Candidates will be selected early in the New Year.

Special Prizes:

43. The College gratefully acknowledges donations of special prizes by several persons and institutions. These are listed in Appendix 13.

Graduates of 1960:

44. The 16 students who graduated last year are making good progress in various appointments:

3 in Education Department (2 at T.T.C. and 1 as Farm Assistant at Vaipouli School);

2 with W.S.T.E.C.

10 in Department of Agriculture: Produce Inspection, Field Advisory services, Marketing, Forestry and Avele Farm;

1 in Police Department : 1 in Prison's Department

Prospects for 1961 Graduates:

45. Twenty-two students (Cook Islands 6; Niue 2; E.Samoa 2; and W.Samoa 12) will graduate this year.

It is hoped that all this year's W.Samoan graduates can be placed in suitable employment early in the New Year. Adequate opportunities are available in the Department of Agriculture, W.S.T.E.C., Teachers' Training College and on a Company's plantation.

Technical Instruction:

46. As in previous years the professional staff of the Department participated in special courses of practical instruction. These are stated in the Farm report below.

Committee:

47. The Advisory Committee held three meetings dealing with all aspects of the College programme. A review of the Programme and revised statement of policy and action were prepared for consideration.

The College:

48. The Principal (Mr E.L. Hardy) reports that progress in all work in all classes has been made at a higher standard than last year. A full scheme of work which has been in operation for the past two years has been endorsed by Inspectors of the N.Z.Department of Education. The school year commenced on 6th February.

Staff:

49. In addition to the Principal, the staff comprised the following:

Assistant Masters: Mr I.L.Milne and Mr D.L. Jones
Part Time Assistant: Mrs W.M. Hardy
Manual Training Teacher: Mr Ropi Seumanutafa
Clerk: Mr E. Fatupaito
Cooks: Messrs P. Taulau and S. Luatua.

During the year two teachers (Messrs F. Luatua and P. Utumapu) were transferred to the Department of Education and Mr I. Milne was transferred to Niue.

Students:

50. The roll comprised 92 students, as follows:

Cook Islands - 19; Niue - 7; Tokelau Is. 3;
Eastern Samoa - 4; Western Samoa - 59; of whom
29 are in Form 5; 32 in Form 4 and 31 in Form 3.

Four studentships were cancelled.

The untimely death of Tutai Teariki is recorded with deep regret. Of the 29 students who completed the 3 years' courses, 22 were successful and qualified for the Certificate of Agriculture and Animal Husbandry - Cook Islands 6; Niue 2; E.Samoa 2; and W.Samoa 12.

Sports:

51. The school has continued to play a leading part in inter-school activities. Four teams were entered in the inter-schools rugby football competition and two in the Saturday competition.

Two teams took part in the Samoan Cricket competition in the middle term. During the final term two teams have played hockey for the first time and two teams are playing European cricket. For a small school and a small staff this has been a heavy programme.

Library:

52. The library continues to grow and is widely used by all classes. The latest accession number is 2810.

Visits:

53. A large number of visitors come to the College and it is not possible to mention them all by name.

AVELE AGRICULTURAL COLLEGE FARM

54. The farm continued under the immediate control of the Farm Manager (Mr H. Treviranus) with the guidance of the Agricultural Officer Development (Mr G.W. Minto, January-July), and Agricultural officer, Livestock and Fisheries Mr J.H. Hove (August-November). Another successful year with land development and production is recorded. The Farm is now the best available demonstration farm in the Territory, specialising in animal husbandry, pasture development and food crops. The Farm Manager, Mr H. Treviranus spent eight weeks in Fiji on a study course, assisted by a grant from the South Pacific Commission.

The farm continues to serve as a field laboratory for students, a demonstration centre for visitors, including district schools; and supplies improved livestock and plant material to planters. It is also a major source of food supply for the College.

55. Land developed to-date comprises 173 acres in pasture, 12 acres in food crops. During the year 19 acres of improved pastures; an experimental plot of grasses and legumes, and 3 acres of taro were planted.

56. Livestock on the farm comprise:

Dairy herd 56, Beef herd 135, Pigs 29, Poultry 47, Horses 10.

Introduced during the year were: 3 Jersey in-calf heifers, 1 Large White Boar, 1 L.W.gilt, and 2 W. Leghorn roosters donated by a local poultry farmer. One Jersey bull and 35 Rhode Island Red cockrels were sold to improve local stock.

For students rations, 22 cattle and 9 pigs were supplied.

Food Crops:

57. A wide range of vegetables (9 varieties), root crops (3 varieties) and fruit (4 varieties) were grown.

Farm Produce:

58. Animal and agricultural produce valued at £3431.14.1. (Jan.-Dec.) was supplied for student rations - the main items being fresh milk, meat eggs, fruit, vegetables and root crops.

Farm Buildings:

59. Farm buildings and installations constructed during the year, with student assistance, included a 3-unit piggery, a cattle loading ramp and a fowlyard. New roads were constructed, electric power and telephone and a dairy sterilizer installed.

Student Farm Activities:

60. Throughout the year practical instruction was arranged on the farm for the Avele students. For three afternoons per week Form V students were engaged in practical work under the supervision of the Farm Manager.

Many demonstrations were held concerning animal husbandry, weed control, forestry, pasture management, entomology, and in all other agricultural aspects.

AGRICULTURAL STATIONS AND RESEARCH

61. The Economic Development Committee recognised and confirmed the need for the kind of activities which are currently included in the programmes of the Department's agricultural stations. The Committee recommended at page 16 of the Report:

> "that recognising the lack of diversification of crops, and its grave repercussions, the Department of Agriculture be requested to treat the development and establishment of tested and proven crops as being of the utmost importance"

This is exactly what the Department has been doing within the approved Policy during the past five years with inadequate funds and facilities in the way of land, staff and equipment.

The following brief notes summarize progress made under the totally adverse circumstances at Nafanua, Vailima, Lafi and Falealili (Togitogiga).

NAFANUA-VAILIMA-LAFI

62. The development and organisation of these three areas totalling 30 acres which come under the immediate charge of the Director with senior Field Assistant - Mr J. Schwenke as supervisor, has been described in previous reports. They now comprise a most valuable resource for development of village and estate agriculture and are being drawn upon increasingly by progressive planters. In addition they continue to provide scope - all too limited for experiments and demonstrations and for staff training and instruction of the people - from school children upwards. A stage has been reached when more land is urgently needed for several important projects.

Although all areas suffered considerable damage from the March storm useful progress was made with the programme which includes the following items:

1. Clonal Cocoa Nurseries of high yielding varieties - Forestero especially Amelonado types - also Trintario, Amazonian and

2. Cocoa propagating station:

3. Coffee - varieties for trial and propagation:

4. Breadfruit varieties: Collection of world varieties for studies in yield and periodicity of bearing:

5. Improved pasture and fodder plants - introduction and distribution:

6. Pest and Disease Control programmes.

7. Minor export crops - cultivation, processing, packing and marketing:

Bananas & Manila Hemp:

63. The Banana fertilizer and spray plots were severely damaged by the storm and it was decided to replant the main area which had been in production for 5 years.

A machine for processing manila hemp fibre received at the year's end will enable trial shipments to be made for market reports.

Cocoa:

64. The main cocoa areas are all in bearing and in the clonal nurseries are established up to 20 plants of each of 72 different high yielding or disease resisting types. Before many of these are released for distribution - they should be included in field tests for yield and growth performance and this calls for an increase in available land.

Work on the establishment of clonal seed gardens and the use of hybrid seed is urgently necessary. Work on propagation - airlayering and grafting must be increased. Disease control experiments continued.

Distribution of Cocoa Plants: In addition to plants used for departmental purposes, the following issues were made -

Seedlings	- 6220	: Cuttings	- 183
Seeds	- 20,000 (475 pods).		

To the Department of Agriculture American Samoa were supplied 1000 pods of clonal seed of var. Lafi 7; and two consignments of seeds and cuttings were sent to the Department of Agriculture in Tahiti.

Processing:

All pods surplus to planting requirement were processed on the station for export sale.

Pods	Beans (dry weight) lbs.	P.P.P.
10,276	828	12.5

In January 3081 lbs (22 bags) had been exported for sale and quality report.

Construction of Driers:

Owing to lack of funds it was necessary to discontinue the prefabrication of flues and the demonstration of the Samoan Cocoa Driers. Many requests for assistance and advice could not be dealt with.

Coffee:

65. All coffee plots (10 vars.) were maintained, and from the nursery, 3445 seedlings were issued to planters. All crops not required for propagation were processed - and planters were assisted with pulping and hulling of their own coffee. The crops from the plots (424 trees) yielded 117 lbs of first grade and 24 lbs of second grade coffee beans.

Other Crops:

66. Observations on growth and yields and work on utilization of the following alternative crops continued:

Black Pepper:	Now in bearing - many plants distributed.
Annatto:	Two new varieties established - 956 seedlings planted out. Market trials were made.
Pawpaws:	Area of Solo variety extended and 20 trial shipments were made to N.Z. with good results. Trials with a special pack in cartons and of various types of case were made.
Pineapples:	Plots were extended - fertilizer and pest control trials continued and small trial shipments made.
Vegetables:	Sweet corn, Capsicum vars. - Spinach - Long beans were grown for maintenance of seed stocks.
Fibres:	Loofah (Luffa) sponges of good quality were produced and new varieties from U.S.D.A. introduced for trial. Paper mulberry (U'a) plots were extended - growth was good.
Pastures:	A new grass and legume demonstration area was, due to lack of land at Nafanua, established at the Avele Agricultural College Farm at Avele. New introductions were made and many issues (6 vars) made to 20 institutions.
Others:	Many legume fodder and cover crops are grown; there is an increasing demand for seed of Centrosema, Canavalia (Fue Moa), Pigeon peas and cowpeas.

Forest trees: Poumuli, bamboos, yemane made excellent growth - all available steep land is now in well-established forest plots.

Fish: Many issues of Tilapia fingerlings were made.

Breadfruit Research:

67. The breadfruit project commenced in 1956 made good progress and the number of varieties was increased by accessions received from overseas - from S.P.C. and other sources - Tahiti, Cook Islands, Rotuma, Tonga, New Guinea, Caroline Is., Guam, Samoa and Ivory Coast. A special area has been allotted for this work which is under the direct supervision of the senior Field Assistant.

Plant Introductions:

68. Many useful introductions made during the year are listed at Appendix 11. Careful records of growth and yields are maintained and a great amount of work is involved in thepropagation of selected varieties for distribution.

Farm Construction Work 1961:

69. The programme of construction work was reduced and the following work was carried out during the year by the construction unit. In addition two cocoa driers were designed for planters and constructed at their own cost. No new demonstration driers were constructed.

a) Buildings	Locality	Remarks
Fertilizer store and approaches	Nafanua	Completed
Machine Shed No.3 (Foundation and roof only)	Nafanua	Not completed
Laboratory & Office shed No.2 and Benches and water supply	Nafanua	Completed
Headquarters Stores (Conversion of garage)	Savalalo	do.
Chemical & mechanics store and approaches	Nafanua	do.
Fagamalo Tool shed	Savai'i	do.
Kitchen & Shower for Foreman	Nafanua	Not Completed

b) Farm Installations		
Cattle Transport Crate	Avele	Complete
Banana Loading platforms (4)	Asau, Fagamalo, Salailua, Salelologa.	do.
Fertilizer Bins & Shed lining	Nafanua	do.
Toilet & water tank	Salelologa	do.
Flag poles for S.B. & N.A.S.		

c) Renovations & Repairs	
Paint all buildings : also Fumigator Station and shed No.1	do.
Samoan cocoa drier, renew thatch and repair Propagator House - repair glazing	do.
Ipu Copra drier - repair glazing	do.

d) General experimental cases for export produce.

Visitors and Field Days:

70. Many overseas and local people visited the Stations - total 1227 of whom 804 were pupils of District Schools. Special courses of instruction and demonstration for students from Avele Agricultural College and for junior staff were arranged.

Revenue:

71. The total cash returns from seeds, plants and produce sold from this station were adversely affected by the storms early in the year. The total sum recorded was £708. Much material was issued free of charge for use at Government stations and to promote interest of growers.
See Appendix 14.

FALEALILI AGRICULTURAL STATION

72. For part of the year only a Field Assistant was available to assist in the supervision of the Station. During the remainder of the year supervision was exercised by a foreman working directly under the Agricultural Officer Development (Mr G.W. Minto).

General Maintenance:

Areas of bananas, cocoa, Manila hemp and coconuts were maintained. Crown treatment of the coconut palms was done at four-weekly intervals. Pruning and routine spraying was carried out in the Kerevat cocoa area. Fertilizer applications were made on the coconut and cocoa areas.

Planting:

There were 1250 Lafi 7 cocoa seedlings planted on newly-cleared land in the early part of the year. Towards the end of the year a further area of two acres was cleared and planted with bananas. It is intended to inter-plant this area with cocoa at a later date.

Storm Damage:

A good deal of damage was done by the storm in March, the bananas and cocoa suffering particularly.

Produce:

A total of 281 ripe cocoa pods were issued to Nafanua and 136 cases of bananas were shipped.

Acreage under cultivation:

At the year's end the acreages of the various crops under cultivation were as follows:

Coconuts 6 acres; Cocoa 7 acres
Bananas, interplanted with cocoa 6 acres
Manila hemp 5 acres; Bananas 2 acres

Total - 26 acres

In addition there are small areas planted with mahogany and Cedrela odorata.

Miscellaneous:

A number of Manila hemp suckers were issued for village planting. Seeds and seedlings of forest species were collected for the Vailima forest nursery.

FORESTRY SERVICES

73. The Forestry areas under the control of the Department are Alaoa, Vailima, Mount Vaea Reserve, Vailima river and Aleisa Reserve. All Forestry development work and services was the responsibility of the Agricultural Officer - Mr G.W. Minto with two Field Assistants.

Vailima Forest Nursery:

74. The following species were introduced into the nursery during the year:

Poumuli	-	Securinega samoana
Asi	-	Syzygium inophylloides
Ifiifi	-	Parinarium glaberrimum
Lama	-	Aleurites moluccana
Talie	-	Terminalia catappa
Tamanu	-	Calophyllum samoense
Tauanave	-	Cordia subcordata
Ifilele	-	Instsia bijuga
Toa	-	Casuarina equisetifolia
Mahogany	-	Swietenia macrophylla

Sesbania grandiflora
Cedrela odorata
Pride of India
Pinus

During the year the forest nursery was considerably extended. At the end of the year nursery stocks were as follows: poumuli 7,650, mahogany 5,450, Cedrela 2,340, Pinus 61, sago palm 8, soursop 13, lama 18, ifiifi 150, niupiu 30, asi 25, Cassia grandis 130, flamboyante 23, Sesbania 84, Bauhinia 80, Pride of India 40.

Distribution of Seedlings:

Seedlings were distributed to the public during the year in the following numbers: Poumuli 680, Cedrela odorata 170, Sesbania 50, and small numbers of mahogany and ornamentals.

Planting:

75. Forest development plantings were made as follows:

a) Vailima: 92 niuvao, 39 poumuli, 39 tauanave, 154 ifi-ifi, 794 ifilele, 360 talie, and 12 tamanu.

b) Vaea: 392 malili, 40 Sesbania, 22 Cedrela, 336 indigo, 1189 tamanu, 502 gasu, 185 tava, 103 asi, 561 mahogany, 432 poumuli, 20 flamboyante, 400 Indian apple, 200 mamalava, 185 tauanave, 1130 Albizzia and 20 niuvao.

c) Alaoa: 518 mahogany.

Thinning and Utilisation:

76. In the course of thinning operations the following numbers of trees were removed from the various blocks: poumuli 100, Cedrela 81, Albizzia 18, Cassia siamea 16, and mahogany 1. The resulting posts were used at Vailima, Nafanua or Avele Farm.

A severe storm occurred in March, and a good deal of damage was done in the forestry areas. At Vailima 16 Albizzia trees, 12 yemane, 25 poumuli, 25 Cedrela and 3 mahogany were knocked down or broken, and at Alaoa, 7 Cedrela and 5 poumuli.

A total of 74 Albizzia logs were delivered to the sawmill, and the resulting timber amounted to approximately 3,420 super feet, cut into various sizes for departmental purposes - farm construction and produce cases for export trials.

Cocoa area at Vailima:

77. A small area of cocoa is maintained at Vailima under the supervision of the Forestry Section.

The crop of 2,818 ripe cocoa pods was issued to Nafanua for distribution, propagation and processing.

Cooperation with Avele Agricultural College & Farm:

The usual close liaison with the College and the Farm was continued. Dairy cattle from Avele utilised Vailima as a grazing area. The Avele Form 5 students received practical instruction throughout the year on the Forestry areas.

Miscellaneous:

A number of visitors, local and from overseas, came to the area during the year.

Posts, stakes, bamboos and firewood were issued from time to time during the year.

FIELD ADVISORY & EXTENSION SERVICES

78. The Economic Development Committee advised at Recommendation 20 -

> "that the staffing of the Department of Agriculture should be reviewed with a view to ensuring an adequate supply of men of suitable qualification and experience for the thorough training of locally recruited staff in modern field techniques."

In 1956 a staff of six professionally trained officers was approved - this was reduced to five in 1957 and for long periods there have been not more than three such officers including the Director and Entomologist available in any one year. In the same period the staff of local officers - few of whom have had any technical training - has increased from 38 to 114 and in-service training of staff has been one of the principal burdens carried willingly and effectively by the small group of senior officers. Also since 1960 this group has been involved in the practical training of agriculture students at Avele.

One local officer with professional qualification, but no practical experience in tropical agriculture, joined the staff late in 1960 but proceeded on further overseas study in October 1961. As compared with other technical departments and considering the many different and pressing problems dealt with by the Department, it is obvious that the present professional staff is quite inadequate. The following record of the important activities carried out during the year in the advisory and extension services has been greatly curtailed because of the departure shortly after year's end of the senior extension officer and because it has been impossible to summarize the available records in time available. The recommendation of the Economic Development Committee was on record when the decision was made not to replace the departing officer by an overseas appointment; and up to the date of this report no numerical replacement has been made.

Development of New Export Crops:

79. The Agricultural officer (Mr V.A.T.Leavasā) continued to supervise development work at Salamumu, Tanumalala and Lefaga, inspection of copra driers and to co-ordinate the work of the Pulefa'atoaga. His report is as follows: (paras. 80 to 90 inclusive).

Distribution of planting materials:

80. On reviewing the records of our work during the year, we found that much of our achievement lies unknown on the ground until such time as they bear fruits.

In the beginning of 1961, there were 2,250 cocoa seedlings distributed, 300 coffee seedlings, 300 poumuli seedlings, 20 Manila hemp. When planting materials were given to growers particular emphasis was stressed upon their immediate planting. An officer was always available to assist and to see that the planting materials were properly planted in a suitable locality. A list of growers who planted these materials is in our April Monthly Report 1961. These are regularly checked by Field staff.

a) Salamumu: The condition of materials in this area are still the same as it was last year ever since we held up on our transport expenditure, we were unable to check them, and in December Field staff made a final survey and report that cocoa and coffee were grown well and approximately half of them covered by weeds. The manila hemp seems to be well except a few plants infected by bunchytop disease.

b) Siumu: The condition of materials appeared to be very good. Reports from the last survey of the year showed a good improvement made and request again for more materials.

c) Lepa: This is one of the best. Their keen interest is shown from the appearance of their individual plantations all materials distributed to these growers were properly nursed. Their cooperation with the department is very much appreciated.

Banana:

81. During the 2nd quarter we were concentrating on advising growers how to make their plantations recover quickly from the damage done in March cyclone and to encourage the planting of food crops. The 3rd quarter of the year, we dealt mostly on encouraging growers to clean their plantations mainly because a shortage of planting materials. In most of the districts we found $\frac{3}{4}$ of each plantation covered with mile-a-minute. The soil nutrition will be wasted in this way of farming. Some of these lands had been fertilized in the early part of the year and they left them overgrown with weeds. The banana exports has heavily dropped, perhaps from our October 1960 planting, the fruit was harvested in September 1961, it seems due to very little planting was being done in 1960 wet season, and a loss from the March cyclone.

Cocoa:

82. During the end of 1961, cocoa made a good recovery from the effects of the hurricane which had resulted in great damage in certain localities. Field staff called in most of these growers and helped them in pruning demonstrations and encourage them to keep their cocoa plantations clean.

Falealili District Bunchytop Campaign:

83. Acting on the advice and recommendations from the department fortunately accepted by the leaders of the Falefitu, they immediately met and arrange their programme of work and the system they operated were as follows:

Matautu	growers	to	inspect	Saleilua
Vaovai	"	"	"	Poutasi
Saleilua	"	"	"	Vaovai
Poutasi	"	"	"	Matautu

On the first day Field staff in-charge of the bunchytop eradication and his men were called to assist and advise them the proper way to do it. This worked remarkably well (as an experiment) soon after their first attempt in these four villages. District leaders called another meeting for the whole district. In that meeting everyone agreed to follow the above system.

Driers:

84. An incomplete survey of certain districts showed that 628 driers in Upolu and Savai'i were inspected. See Appendix 10.

Lefaga and Tanumalala Rehabilitation:

85. During the year, we have been trying to meet all the growers of the districts and their Pulefaatoaga in various occasions to have their land free from the bunchytop disease. A good response from a small number who have begun to dust their fruit which are now free from bunchytop. In March, these growers may start to ship fruit. We are now assisting the growers by supplying them with a limited amount of banana suckers to plant.

Falelatai and Samatau:

86. The condition of these two villages are very much the same, as it was last year field reports received from the Pulefa'atoaga and Field staff appears they are keen to plant more taro and taamu than ever before. In such case we must concentrate to this district to wipe out the bunchytop completely.

Shipping Division:

87. The Senior Shipping Officer (Mr Toa Semisi) was responsible for the supervision of the Shipping Division of the Department in association with the Senior Agricultural Officer (Mr P.B.Newell) and the Agricultural Officer Export Crops (Mr V.A.T.Leavasa).

Staff:

88. The shipping section comprises the Senior Shipping officer and eleven records and shipping clerks of whom three are posted to Savai'i shipping centres.

During the year these clerks were divided to keep records of each district and also 25% of their time spent in districts on banana payout, 25% on records and 50% in shipping. With such a pressure they were sometimes unable to bring their work up-to-date. One resigned during the last quarter and went to New Zealand, and to date no replacement has been made. In order to develop the work of this section in 1962, three additional clerks one for Fagamalo two for Headquarters are required. I have to thank all senior officers and staff of all sections of the department for their assistance and cooperation during the year; also

thanks to the growers, sea and land contractors for their generosity and valuable assistance during 1961. It is quite clear that without the combined effort of all these parties we would not at all be in a position to export these higher numbers of cases.

89. The total for 1960 and 1961 Export figures from alldistricts were 613,461 and 547,233 respectively for the period of 12 months ending 30th November in each year.

There were 34 shipments compared with 37 shipments in previous year. Some 687 cases were not shipped owing to several reasons such as damage by trucks, boats and by rough handling and oil. The South West Coast, Falelatai and Lefaga did not ship fruit in 1961, for they were badly infested with the bunchytop disease.

Total for Upolu	438,515 cases
Total for Savai'i	108,718 "
	547,233 "

The income earned by growers from bananas exported during the year including bonuses amounted to £287,297.6.6.

Marking and Transport of Banana Cases:

The schedule for each shipment is prepared by records clerks for each district from the allocation list handed in from the allocation officer, each records clerk is responsible for any shortage or over marking of any depot in his district.

Sea and Land Transport:

During the year some defects arose from some of the contractors who unfortunately failed to have all their quotas in before the appointed time of the ships' sailings. In general the co-operation from the contractors in both Islands of Upolu and Savai'i were very much appreciated.

Other Export Crops:

90. Experimental shipment of pawpaws, avocados, pineapples and eggplants were carried out continuously by Nafanua Agricultural Station.

The response from growers to participate in these experimental shipments was not favourable due to the fact that the growers need their money at the time their fruit is delivered to the shed. Had we any funds provided by the Government to work with, no doubt we would be in a position to draw the interest of the growers to export all of their crops which usually rot in their plantations.

PEST CONTROL, PLANT QUARANTINE AND ENTOMOLOGY SERVICES

91. Under the direction of the Entomologist (Mr G. Ettershank) useful investigatory work on control of pests has been done. This work may be summarised as follows:

a. Insecticidal & mechanical control, and biological investigations of the Cocoanut Rhinoceros Beetle Oryctes rhinoceros (L).

b. Insecticidal & biological control of the Banana Scab Moth (Nacoleia octasema Meyr).

c. Organisation of a Plant Quarantine Service, and a Stored Product Pest Control Service.

d. Miscellaneous.

Coconut Rhinoceros Beetle:

92. Field Control: The field control of Oryctes rhinoceros was reorganised to give teams of inspectors working district by district, and village by village within each district. This system seems to have given improved control, as more thorough inspection results.

Crown Treatment: The area of Crown Treatment of coconut palms was extended to enclose an area one quarter mile deep from Mulinu'u to Vaisigano (on the western and southern sides of Apia harbour) and one half mile deep from Vaisigano to Vaiala (on the eastern and south eastern sides of Apia harbour). This should provide an adequate quarantine area so that ships anchored in Apia Harbour should now be free of the possibility of acquiring flying rhinoceros beetles which could be carried to other, uninfested islands. A number of demonstrations of crown treatment were carried out on the plantations of interested growers on Upolu and Savai'i, for the protection of new plantings.

Biological Control: Some advances weremade with the breeding of Scolia ruficornis, a larval parasite of O. rhinoceros, although it is realised that its value is restricted to compost and sawdust heaps. Bins and pits of sawdust proved ineffective due to waterlogging, but field work indicates that heaps of sawdust or compost, enclosed in boards to enable easy breakdown of the pile, is effective. This method is used in the U.S.Trust Territory (R.P. Owen, personal communication). This system will be tried out in 1962.

A predatory assassin bug Platymerus rhadamanthus (Hemiptera, Reduviidae) was received from Zanzibar in July; a consignment of 46 adults and 34 nymphs was forwarded by C.P.Hoyt of the South Pacific Commission. The larger part of the consignment was liberated in heavily attacked palms at Utumapu, and an attempt was made to breed from six pairs, retained in the insectory. These were intensely cannabalistic, and no breeding was possible. It is too early to tell if this bug is established.

Mechanical Control: A trial was laid out at Faleata Plantation to assess the value of a black-light lamp equipped with a charged grid for the control of O.rhinoceros. However, the units supplied were fitted with the wrong grid transformers, and replacements are awaited from the manufacturers.

Chemical Control: Laboratory screening trials indicate that while heptachlor dust and granules and sevin dust are effective larvacides, the rates required will probably be uneconomic, dependent on their persistence under field conditions. It is proposed to carry these to field trials in 1962.

Biological Investigations: Breeding work to ascertain accurately the life history of O.rhinoceros has been commenced; some information on longevity and feeding habits should be obtained also. Studies on the internal anatomy, cytology, ovogenesis and embryology of O.rhinoceros have been commenced.

A further contribution of £1000 was made by Government to assist the South Pacific Commission's research programme for Oryctes control.

Banana Scab Moth & Other Banana Pests:

Insecticidal Control:

93. Screening trials were conducted in which DDT, Sevin (two formulations) Bacillus thuringiensis (an entomogenous bacterium) and Tedion - PCPPBS (an ovicidal preparation) were tested. Only DDT gave satisfactory control of Nacoleia octasema Meyr.

Biological Control: In April 1961 a new method of breeding of Chelonus striatagena was commenced, which did away with much handling of individual larvae. In the nine months, 1448 females and 1169 males were released in the field. However, an endemic hyperparasite (Brachymeria sp) has attacked pupae of C.striatagena in the field, and greatly reduced its effectiveness, a rate of 25% hyperparasitism being calculated. It would appear that this parasite has no future here as a control for banana scab moth.

A study is being made of mass breeding techniques for Nacoleia octasema Meyr. preliminary to a study of sex-attractants. If such an attractant can be isolated and identified, a powerful tool for scab moth control would be available.

Bunchytop Virus Disease of Bananas:

94. Several injectors used in the control of this disease in Australia were imported, and are now undergoing trial. Work by this section indicates that an injection fluid containing 1:20 2-4D plus 1:300 Ekatin (a systemic aphicide) will kill infected plants and any aphids present on them.

Plant Quarantine Service:

95. The inspection of incoming freight and passengers' luggage was re-organised, and inspectors now operating at Apia wharf and Faleolo airport provide an effective service. Plant material intercepted is either inspected and cleared, fumigated, or destroyed.

Stored Product Pest Control Service:

96. Owners of warehouses and stores may now have their sheds treated with insecticide, and infested materials fumigated. Material (plastic sheets, line etc.) is being obtained so that fumigation of infested material in situ may be carried out.

Fumigation Service:

97. The two fumigators at Nafanua handled both inward and outward materials. A higher level of public cooperation resulted from publicity via press and radio. The following is a summary of the materials handled during the year:

Atmospheric Chamber

152½	tons Cocoa Shell	1169	bags Rice
88½	" Cocoa Nibs	85	" Flour
420	cases Grapefruit	30	" Peanuts
80	bundles Mats	36	" Coconuts
2	cases Mats	50	" Planting Material

Fees charged: £141.9.0.

Vacuum Chamber:

Mats, Mattresses, Kapok, Kava, Fruit, Vegetables.
Fees charged: £71.4.6.
Total revenue (both chambers) £212.13.6.

Overseas Visits:

98. The Entomologist represented the Government of Western Samoa at the Tenth Pacific Science Congress in Hawaii between 21st August and 2nd September, and attended a post-sessional field trip to report on agricultural practices in Hawaii. Mr Ettershank also represented the South Pacific Commission at the First Meeting of the F.A.O. Working Party on Coconut Production, Protection and Processing at Trivandrum, India between 27th November and 2nd December. Separate reports on these meetings have been submitted.

Miscellaneous:

99. The Entomologist made several broadcasts and contributed articles to "Laufasi Ola" and the local press on agricultural pest problems. The Entomologist wishes to express his appreciation to his assistants L/A Tua'i Sale and L/A Kesi Ale for their valuable work during the year.

LIVESTOCK AND FISHERIES 1961

This section was under the control of the Agricultural Officer - Livestock and Fisheries - Mr J.H. ten Hove whose report is as follows: (para. 100 - 106).

Livestock:

100. General: As a result of a severely curtailed development programme (estimates having been cut down to a bare minimum) most projects were deferred, so that only a maintenance service in the field of animal husbandry could be carried out.

Under the circumstances it is hardly possible to expect village people to be made aware of the great potentials of the livestock industry in W.Samoa and to encourage them to increase livestock production as well.

Also this year, nearly $\frac{1}{4}$ million pounds was spent of Samoa's overseas funds on meat and meat products! That means that per capita one has spent approximately £1.18.5 on these products. With a little more attention to animal husbandry in W.Samoa this expenditure could readily be halved.

Fewer village meetings (43) and demonstrations (39) were held in 1961 in comparison with last year.

As the livestock owner does not visit Avele Livestock farm for information and demonstrations he should be encouraged at his own familiar place, not only by way of:

a. introduction and advisory meetings, but together with the

b. introduction of pure bred male breeding animals (moveable breeding units)

c. erection of a fowl house plus run and a pigsty in villages for demonstration purposes and

d. the stocking of such constructions with suitable male animals.

Livestock Port inspection:

101. Port inspection in Apia has been carried out in co-operation with the Produce section, but since August these duties were entirely taken over by that section. Livestock inspection at Faleolo was carried out by a member of the Entomology section.

At this stage I wish to record disappointment concerning the fact that the Animal Quarantine Regulations to the Animal Ordinance are as yet not officially enforced. Apparently the country is very indifferent to possible serious outbreaks of diseases amongst the livestock population.

The following records have been kept of imports and exports of livestock:

	Pigs	Poultry Fowls	Poultry Turkeys	Cattle	Dogs	Birds
Import	16	3,327	31	7	4	8
Export	107	71	-	1	-	-

The countries from which livestock is imported: New Zealand, Australia, American Samoa, Fiji and Tonga. Amongst those animals imported were one purebred Large White boar, 3,300 day old chicks of various breeds and 7 Hereford bulls.

Livestock population in W.Samoa:

102. During the months July, August and September a livestock census was held. It cannot be claimed that the figures obtained are accurate because of the following reasons:

a) livestock owners were not prepared to give the correct figures, as they thought the census to be another method of tax collection.

b) Few livestock owners and in some cases whole villages refused to fill in forms of this voluntary census and the livestock population of those had to be estimated. See Appendix 12.

Livestock Production:

103. Although the killing of beef, pork and chicken cannot be assessed in W.Samoa, the figures concerning beef, and pork all provided by the Department of Health indicates only animals slaughtered at the W.S.T.E.C. slaughter house at Vailele. See also para.

Instruction at Avele College Farm:

104. a) Milking: During the second school term and part of the third term the students of Form III, IV, and V were instructed in milking technique, milking hygiene and shed procedure at the morning and afternoon milking times.

b) Practical animal husbandry: During the year instruction was given to Form V in all aspects of practical animal husbandry.

Field Work:

105. With financial assistance in the form of certain materials bought by the department and departmental supervision, the people from A'opo, and Letui have each built a pigsty unit and a fowl house plus run. This is part of the project and it is anticipated to give under certain conditions each village in 1962 a pure bred boar and 2 pure bred roosters.

Animal Diseases:

106. The situation concerning livestock diseases in W.Samoa is just as bad as last year and if no veterinarian is appointed temporarily or permanently in the near future very little improvement in the essential disease eradication can be expected.

For instance it is estimated that one half of the pig population in Samoa is very heavily infested with intestinal worms which account for heavy losses.

FIELD ADVISORY SERVICES

(cont'd from para 90)

Bunchytop Field Control:

107. The Department continued its field campaign for the eradication of bunchytop virus disease. Unfortunately, the campaign had to be suspended for a period of several weeks in the middle of the year, due to financial difficulties. On the resumption of the campaign to the end of the year the teams operated mainly in the Falealili, Safata and South East Coast areas. During this period a total of 490 warning notices were issued, there were 43 convictions in court, and fines totalling £84 were imposed. During the same period a small team operated in Savai'i, in the Fa'asaleleaga district.

Much greater efforts are needed on behalf of growers if this disease is to be defeated.

Rhinoceros Beetle Field Control:

108. As in the case of bunchytop control, there was a break in activities in the middle of the year. Work was resumed in August, and from then until the end of the year the details are as follows: Districts covered by inspection teams - Falelatai, Lefaga, Safata, A'ana, Aiga-ile-Tai, Vaimauga, Anoama'a, Falealili, Aleipata and the Apia Town Area.

Properties visited	8,133	Breeding places	20,567
Eggs	7,628	Larvae	16,437
Pupae	170	Adults	1,027
Warning Notices	1,817	Convictions	61
Fines imposed	£62.		

A small team also operated in Savai'i.

Emphasis continued to be placed during the year on the destruction of breeding places. The teams were able to maintain a good degree of mobility, and a large proportion of the country was visited. Even greater efforts are still required on the part of growers in the fight to control the rhinoceros beetle.

Weed Control:

109. During the year, as a result of various difficulties including shortage of transport, work in connection with weed control was severely restricted. No prosecutions were instituted under the Noxious Weeds Ordinance. The small number of trials and demonstrations done were mainly restricted to Government land. Spraying with 2,4-D was carried out along the water race at Alaoa. A certain amount of roadside spraying against giant mimosa was done. Trials were carried out on the use of Dalapon for killing weed grasses.

The most troublesome weeds continue to be giant mimosa and Elephantopus. The spread of the former has continued, and there is urgent need to contain it.

Fertiliser Distribution:

110. Bonus issues of fertilisers were delivered to banana growers throughout the year. The growers were instructed also in the correct method of applying the fertilizer. The quantities of fertiliser actually issued were as follows:- Sulphate of ammonia 32 tons, Superphosphate 8 tons, and Muriate of Potash 40 tons, 1 cwt. and 18 lbs.

Farm Services:

111. A number of pruning and spraying demonstrations on cocoa were carried out during the year, in both Upolu and Savai'i. In Upolu eight properties were visited, and 843 trees pruned, and 658 trees sprayed with Bordeaux mixture against black pod disease. In Savai'i 19 demonstrations were carried out on different properties, and 1305 trees were pruned and 870 trees sprayed.

All the above demonstrations were carried out in the first part of the year, as this aspect of the Department's activities could not continue in the second part of the year owing to the unavailability of transport.

Weed Control:

Activities during the year severely restricted and virtually limited to small trials and demonstrations on Government land.

Cocoa Pruning and Spraying:

Demonstrations

Number	Trees pruned	Trees sprayed
27	2,148	1,528

Control of Banana Leaf-spot diseases:

112. Control measures against leaf spot of bananas, which had been begun in 1960, were continued throughout the year. The areas under control were at Lepale, Faleasi'u-uta, and Aleisa, and the total acreage involved was approximately 600 acres.

The bananas were regularly sprayed with Shell misting oil, using Micronette sprayers. A complete cycle of spraying was completed in 6 to 8 weeks, subject to weather conditions, and the total area actually sprayed during the year was approximately 3,600 acres.

When the weather was unsuitable for spraying, bunchytop control was carried out, and a total of 12,992 diseased stools were destroyed.

The Field Assistant in charge of the operations, Tavita Leupolu reports that the good effects of the sprayings were clearly seen in the condition of the bananas in the dry season, and that the work done was much appreciated by most growers.

CONCLUSION

113. The above report records, somewhat inadequately, the work done by the people of Western Samoa and by officers of the Department of Agriculture in the year 1961 - the last year of New Zealand Administrative and technical assistance under the United Nations Trusteeship Agreement.

Throughout the years, there has grown up an increasing recognition of the important, indeed vital, role, which a strong Department of Agriculture must sustain in the interests of the welfare of the country and its people. This will not change with the coming of Independence on 1st January 1962; but will need the continuing support and confidence, on which sound progress so much depends.

"THE HERITAGE OF THE PAST IS THE SEED THAT BRINGS FORTH THE HARVEST OF THE FUTURE -"

The responsible and increasingly efficient work of many members of the staff is acknowledged; their relationships with the public were very good; they carried out many difficult and strenuous field projects, willingly and effectively. The value of their work is not adequately recognised!

Readers of this report should not need to be reminded that the Department is a statutory organisation administered and working under the Agriculture Ordinance and that its officers are trained to that end. They, no less than the ordinary citizen, villager or planter, are obliged to carry out the requirements of the several Agricultural Ordinances and Regulations. In doing so and in making inspections, they do not "gang up" on any landholder or occupant....they operate as advisers and friends, and seek only the cooperation and good-will of the community for the common good of all.

Department of Agriculture Staff Association:

An advance in terms of staff co-operation and organisation was made by the establishment of the Department of Agriculture Staff Association with the Hon. Asiata Lagolago as Patron, Mr B.E.V. Parhsm as President, Mr V.A.T.Leavasa Chairman of Committee of seven delegates from the Divisions of the Department. The objects of the Association are to promote the social welfare of all members of the staff and to develop amenities for recreation and to provide facilities for out-door and in-door sports - in co-operation with other Government staff Associations with similar objectives. Membership is voluntary - there are 75 members and two sports clubs have been formed during the year. This project is believed to be of great value in the training of junior staff.

B.E.V. PARHAM
DIRECTOR OF AGRICULTURE
22/2/1962.

ADDENDUM

PRODUCE INSPECTION SERVICES

114. Each year the scope and responsibilities for plant and Produce Inspection services increase in number and variety. The Division was under the control of Snr. Produce Inspector, Mr Ma'ilo Saipele with Amituana'i A. and Tiumaluali'i F.S. as senior associates. In technical matters relating to animal and plant inspection, quarantine and fumigation the programme was assisted by the collaboration of the Entomologist (Mr G. Ettershank) and the Agricultural officer - Livestock (Mr J.H.ten Hove). For banana shipments it was necessary to supplement the inspection staff by the employment of Field Assistants for night duty at Savalalo and for field duties in all districts. For part of the year a group of supervisors, engaged on a casual basis did excellent work in country areas, checking and instructing growers during packing of bananas at their depots.

Staff:

115. There were few changes of staff; two were appointed and five retired or resigned. Training of junior inspectors continued.

Work done:

116. The following assignments were necessary to maintain the following services:

Apia Port Inspection; Faleolo Airport Inspection; Apia Cocoa & Copra Sheds; Banana Inspection at Apia; Banana Inspection at 4 Savaii ports; Village & trading post, and inspection - cocoa and copra; Licences, fees & Court Proceedings.

The scope of this work can be seen by perusal of the statistics of exports and imports given in Appendices Nos. 8 and 9. In summary the Division inspected -

Banana cases	571,184	including rejects
Copra (sacks)	200,000	" "
Cocoa (sacks)	50,000	" "
Vessels arriving	87	3,241 cases, 36,668 other items 9,860 sacks
Vessels departing	87	
Aircraft arriving	365	
Aircraft departing	365	

As well as maintaining a routine inspection of copra & cocoa at town and country centres.

Court Proceedings:

117. The Division is responsible for handling reports of field and shed inspections and for preparation of Information leading to Court prosecutions under:

a) the Copra Ordinance b) the Cocoa Export Ordinance
c) the Noxious Weeds Ordinance d) the Rhinoceros Beetle Ordinance
e) the Banana Bunchytop Ordinance

The number of cases dealt with and the court fines resulting are at Appendix 15.

The recording and clerical duties in connection with this work were sustained by one Junior Clerical Assistant and one Inspector (part-time).

Plant & Animal Inspection & Quarantine:

118. A considerable number of animals and parcels of plants and seeds is inspected during each year. This work is carried out in collaboration with the technical officers and is recorded at paras 97 and 101 above.

Animals ... ... 3,572 ; Produce & Plants (Seeds) 3,370.
Miscellaneous (bundles) 182.

All these items required attention - actual sampling, inspection and treatment and also the issue of certificates.

Revenue:

119. Total approximate revenue resulting from the operation of the Division was £15,209.5.0. See Appendix 9.

APPENDIX I

SUMMARY OF MONTHLY METEOROLOGICAL OBSERVATIONS *

1960

	Means of Temperature Max+Min / 2	Max	Min	Rainfall	Rain Days	Sunshine	Thunder	Lightning	Mean Monthly Humidity
	F°	F°	F°	Inches		Hours			
January	81.0	86.9	75.1	15.56	27	182.5	11	11	85
February	80.3	86.4	74.3	13.64	24	148.3	12	15	85
March	79.0	83.9	74.0	27.40	30	56.9	5	6	89
April	80.6	86.9	74.3	7.20	15	255.2	5	4	85
May	80.4	86.8	74.0	6.45	9	255.1	2	2	84
June	79.2	85.2	73.3	8.69	17	214.7	6	12	83
July	79.0	85.0	73.0	1.53	10	250.2			80
August	78.8	84.7	73.0	6.69	22	217.2	1	2	81
September	79.6	85.1	74.1	7.76	13	266.9	1	1	80
October	78.4	84.4	72.4	8.90	16	182.8	7	6	84
November	79.6	85.2	74.0	13.62	24	164.0	8	11	84
December	80.3	86.2	74.4	6.80	14	202.2	7	7	83
Year	79.7	85.5	73.8	124.24	221	2396.0	65	77	84
Departure From Normal	+0.2	+0.5	-0.2	+11.96	+20	-151.0	-	-	+ 1%

Rainfall Maximum daily fall 6.06 on 12th March 1961.

Rainfall Maximum hourly fall 2.06 on 2nd May 1961.

Wind Maximum gust recorded 53 knots from NW on 14th March 1961.

* By courtesy Officer-in-Charge - Apia Observatory.

APPENDIX II

DEPARTMENT OF AGRICULTURE, FORESE & FISHERIES

- GENERAL SUMMARY OF DIVISIONS 1961 -

(Senior Staff)

DIRECTOR (B.E.V. Parham)

Technical Services *

AGRICULTURAL STATIONS & DEVELOPMENT:	B.E.V.Parham (Director): J. Schwenke : F.Molimuaina: J. Schuster : Tiseni N.
UPOLU FIELD & FORESTRY:	G.W. Minto (Snr.Agricultural Officer) J.Hellesoe : T.Leupolu : Kalolo T. ; Satiu L.: Tuli T.:
SAVAII FIELD & BANANA SHIPPING	V.A.T.Leavasa(Agricultural Officer): G.duSeigneur : Savea S.: F.Faasuaga: Taua'a F.: Koko E. Tinifu:
UPOLU FIELD & LIVESTOCK:	J.H. ten Hove (Agricultural Officer); J. Schwalger: E.Ripley: Va'a Tipi:
PEST CONTROL & ENTOMOLOGY:	G. Ettershank (Entomologist): S.Tua'i Kesi Ale : Leupolu N.:
PRODUCE INSPECTION:	Ma'ilo S.(Snr. Produce Inspector) : Amituana'i A.: Tiumaluali'i F.:
SHIPPING:	Semisi Toaolamai (Snr.Shipping Office Saletele P. : D.P. Stanley :

H.Q. Services **

CABINET:	
AVELE AGRICULTURAL COLLEGE:	E.L.Hardy (Principal): D.L. Jones: H.Treviranus (Farm Manager) :
BOARDS & COMMITTEES:	

Admin. & General Services *** — Officer E.Andrews

ACCOUNTS (GENERAL & STAFF):	E.M. Matthes (Mrs) - Snr. Clerk: J. Fretton. Sofa P.:
ACCOUNTS (BANANA):	R. Aspinall (Snr. Accountant): Papali'itele M.T. (Snr. Clerk):
STAFF (SALARIES,WAGES,LEAVE, INDENTS)	S. Naea (Clerk) Misipati I.
GROWERS' ALLOCATIONS(BANANAS):	Seumanutafa P. (Snr. Clerk):
RECORDS, STATISTICS, INFORMATION:	E.L. Thieme (Mrs) Clerk:
CORRESPONDENCE & FILES:	M. Kruse (Mrs) Snr. Stenographer: F. Setefano (Mrs) : S. Gray (Miss):
STORES:	J. Wilson (Storeman) :
TRANSPORT CONTROL:	J.H. ten Hove (Agricultural Officer);

APPENDIX III

DEVELOPMENT OF AGRICULTURE IN W. SAMOA

The following notes are extracted from the "Report of the Economic Development Committee on Economic Planning for Western Samoa," for the information of readers who may not have access to the report. It will be seen that, in almost every item, the Committee has endorsed the current activities of the Department as being of greatest importance to economic development of W.Samoa.

GENERAL:

"Substantial increases in agricultural production must receive top priority in any development plan Government may adopt" (p.14)

"One of the most important problems.....was to find ways and means to assist the average Samoan planter to increase his production." (p.14)

RECOMMENDATIONS: (17-27) on pages 15 to 18:

Land tenure & Utilization:
a) Economic development can be effected within the present system of land tenure;

b) Assistance be given to settlement of approved Samoan planters on their own village lands;

c) Utilize efficiently present cultivations by use of modern techniques, rather than break in new land.

Roads: Review present policy re access and plantation roads and draw up detailed roading plan.

Credit: Subsidies for fertilizers; planting material, fencing, breeding stock; finance for processing equipment.

Agricultural Extension Service:

Review staffing to ensure adequate supply qualified and experienced officers for the thorough training of locally recruited staff.

Crops: Department of Agriculture treat the development and establishment of proven new crops as being of utmost importance.

Forestry: Review policy on afforestation and encourage village plantings.

Livestock:
a) Pigs - encourage villagers to increase production; improve breeding stock and feeds.

b) Poultry: provide improved breeding stock.

c) Cattle: a. encourage villages to increase by provision of improved breeding stock;

b. subsidies for fencing.

Fisheries: That Government make available to Department of Agriculture vessels and equipment for investigation and development of off-shore long-line fishing.

Pest & Disease Control:

a) means be provided to control pests and diseases on sound and proven methods - and most stringent methods be introduced to secure the maximum control;

b) explore every avenue to impress on planters the seriousness of Bunchytop virus disease.

Crops & Cropping:

a) the highest quality planting material of coconuts, cocoa and bananas be made available free to planters;

b) subsidy schemes be investigated;

c) legislation be introduced to enable Copra Board to invest directly in copra industry;

d) representations to New Zealand Government to ensure a better return to banana producers;

e) investigate potential markets for Samoan bananas;

f) continue replanting of breadfruit.

General:

a) that a suitable overseas export port in Savaii is necessary;

b) direct incentives should be used now to encourage replanting of coconuts and cocoa;

c) primary emphasis on developing existing cleared land, first of all coastal areas and then inland areas up to elevation of 600 feet.

N.B. The facilities in the way of trained staff, labour and equipment required to implement these proposals within reasonable time - are not available. The problem is to find not only money but continuity of support for the work.

APPENDIX IV

COCOA SHIPMENTS DURING 1961

- TONS -

1961	Beans No.1	Beans No.2	Nibs	Shells	Total
January	1,072	570	51	70	1,763 Tons
February	31	14	0	0	45 "
March	9	0	3	0	12 "
April	187	128	33	68	416 "
May	40	37	48	5	130 "
June	52	37	0	10	99 "
July	60	30	18	8	116 "
August	9½	2	0	0	11½ "
September	56	40	6¼	8	110¼ "
October	No Shipments				
November	178	107	7½	10	302½ "
December	399	213	14	13	639½ "
TOTAL:	2,094	1,178	180¾	192	3,644¾ Tons

Recorded by Produce Inspection Division.

APPENDIX V

DESTINATIONS QUOTAS : COCOA SHIPMENTS 1961

LONDON	January - March	702	271	51	70	=	1,094 Tons
	April - June	233	162	45	83	=	523 "
	July - September	86	60	$6\frac{3}{4}$	16	=	$168\frac{3}{4}$ "
	October - December	407	275	$7\frac{1}{2}$	23	=	$712\frac{1}{2}$ "
U. S. A.	January - March	260	305	0	0	=	565 "
	April - June	0	28	0	0	=	28 "
	October - December	45	25	0	0	=	70 "
GERMANY	January - March	75	0	0	0	=	75 "
	April - June	10	5	0	0	=	15 "
	July - September	5	0	0	0	=	5 "
	October - December	35	0	0	0	=	35 "
AUSTRALIA	January - March	46	8	3	0	=	57 "
	April - June	28	0	36	0	=	64 "
	July - September	2	0	$17\frac{1}{2}$	0	=	$19\frac{1}{2}$ "
	October - December	0	0	14	0	=	14 "
NEW ZEALAND	January - March	29	0	0	0	=	29 "
	April - June	8	7	0	0	=	15 "
	July - September	$32\frac{1}{2}$	12	0	0	=	$44\frac{1}{2}$ "
	October - December	$60\frac{1}{2}$	20	0	0	=	$80\frac{1}{2}$ "
HOLLAND	October - December	30	0	0	0	=	30 "
		2094 Tons	1178 Tons	$180\frac{3}{4}$ Tons	192 Tons		$3644\frac{3}{4}$ Tons

APPENDIX VI

CROP STATISTICS - 1961

UPOLU DISTRICTS	No. C/nuts 1 - 1 year	No. C/nuts 2 - 6 years	Acres Bearing C/nuts	Acres Cocoa	Acres Bananas	Acres Coffee	Acres Taro
Aleipata & Lotofaga	35,191	61,766	4,606¼	1,727¾	5,145½	3½	729
Falealili	32,516	59,076	3,456¾	1,682½	3,315¾	-	409½
Falelatai Lefaga	31,407	60,178	3,564½	2,963½	18½	150	1,349½
Anoama'a	18,896	27,925	2,567¼	1,392½	2,265¼	-	670½
Safata	16,241	16,722	1,939¼	1,543	1,355¾	4½	876¾
Fagaloa	8,999	10,636	910	303¼	907½	7½	193½
A'ana	27,556	16,067	2,564½	2,839	1,627¾	32¾	522½
Tuamasaga (Tufulele-Faleula)	5,662	12,522	1,518	1,995	1,610¾	59¼	551½
Aiga-ile-Tai	3,280	5,741	758½	488¼	128½	12¼	148½
Vaimauga	2,972	1,563	1,096½	475½	736½	4¼	638¾
Faleata	302	321	185¼	955¼	895¼	14	377¼
Saleaula	1,748	1,181	71½	603	502	1¼	444¾
	184,770	283,698	22,238¼	17,968½	18,509	289¼	6,912
SAVAI'I DISTRICTS							
Faasaleleaga	173,055	-	-	638	506	160	160
Gagaemauga	59,222	-	1,011	410	775	200	373
Gagaifomauga	69,007	-	1,031	589½	1,085	500	369
Satupa'itea West	22,036	19,799	1,014	1,722½	1,994½	160	-
Palauli West	13,393	18,700	1,058	163¼	495	200	-
Palauli East	59,335	-	-	1,725	-	100	-
Itu Asau	94,056	13,331	1,145	2,767	1,729	150	215
Satupa'itea East	20,888	-	-	749	-	100	-
	510,992	51,830	5,259	8,064¼	6,584½	1,570	1,117

APPENDIX VII

COPRA SHIPMENT DURING THE YEAR 1961
- TONS -

1961	H.A.D.	S.D.1	S.D.2	Tokelau	Total
January - March	1,588 Tons	342 Tons	270 Tons	0 Tons	2,200 Tons
April - June	3,785 "	558 "	433 "	47 "	4,723 "
July - September	3,610 "	509½ "	396 "	0 "	4,515½ "
October - December	2,139 "	153 "	129 "	73½ "	2,494½ "
TOTAL:	11,122 Tons	1,562½ Tons	1,228 Tons	120½ Tons	14,033 Tons

COPRA TO VARIOUS DESTINATIONS
- TONS -

1961	H.A.D.	S.D.1	S.D.2	Tokelau	Total
London	6,566 Tons	634½ Tons	515 Tons	0 Tons	7,715½ Tons
New Zealand	3,180 "	686 "	551 "	120½ "	4,537½ "
Japan	812 "	204 "	134 "	0 "	1,150 "
Germany	564 "	38 "	28 "	0 "	630 "
TOTAL:	11,122 Tons	1,562½ Tons	1,228 Tons	120½ Tons	14,033 Tons

Recorded by Produce Inspection Division

APPENDIX VIII

EXPORT OF PRODUCE TO NEW ZEALAND

FRUIT (Fresh)

Avocados	564 Cases
Capsicum	3 "
Maize	1 Bag
Mangoes	37 Cases
Pawpaws	2,283 "
Pineapples	91 "
Polynesian Plums	2 "

NUTS:

Candle Nuts	1 Case
Coconuts	100 Cases
Nutmegs	8 Sacks

ROOT CROPS:

Taro (cases)	1,015
Ta'amu "	12
Yams "	9

MISCELLANEOUS

Beddings	14 Bundles
Cocoabeans	4 pkts.
Cocoapods	2 Bags
Samoan Oil	2 Cases
Samoan Tobacco	9 Ctns.

EXPORT OF PRODUCE TO AMERICAN SAMOA

FRUIT (Fresh)

Avocados (cases)	21
Bananas (sks)	112
Fruits (cases)	1
Mangoes (")	29
Oranges (")	2
Pawpaws (")	30
Polynesian Plums (c/s)	30
Watermelons (cases)	3

NUTS:

Coconuts (sks)	13

ROOT CROPS:

Taro (sacks)	2592
Taamu (")	181
Yams (")	5

VEGETABLES:

Cabbages (bskts)	4
Cucumbers (")	8
" (loose)	30
Peas (bskts)	4
Pumkins (loose)	8
Tomatoes (cases)	2
Vegetables (bskts)	46

MISCELLANEOUS:

Beddings (bundles)	12
Cocoa beans (sks)	1
Kapok Wool (sks)	10
Mattresses	9
Samoan Oil (cases)	26
Samoan Tobacco (Sai)	28

APPENDIX IX

PRODUCE IMPORTS - 1961

Apples (c/s)	802	Fowl Wheat (bgs)	68	Plants (c/s)	2
Bananas (")	1	Frangipani Cuttings	1 bdls	Plums (")	49
Beetroot (")	37	Garlic (c/s)	19	Potatoes (bgs)	1079
Breadfruit plants	6 bgs	Grass Seed (sks)	½	Rice (bgs)	32,363
Broccoli Spears	1 c/s	Kapok (c/s)	59	Sago (")	54
Brown Onions (c/s)	26	Kava Roots (pces)	253	Seeds (Centrosema)	bgs 2
Bugal Nuts (bgs)	1	Kumaras (bgs)	32	Strawberries (c/s)	15
Cabbages (c/s)	355	Leeks (c/s)	4	Swedes (")	20
Carrots (")	441	Lettuce (c/s)	64	Taamu (bgs)	28
Cauliflower (c/s)	71	Mats (bndls)	27	Tapas	11
Celery (")	31	Oats (bags)	59	Taros (c/s)	18
Chaff (bags)	63	Onions (")	1944	Tomatoes (c/s)	398
Citrus Tree (c/s)	4	Oranges (c/s)	75	Tongan Oil (c/s)	16
Cocoabeans (bags)	6	Parsnips (")	42	Vegetables (")	49
Corn (")	110	Peanuts (bgs)	549	Vegetables (Seeds)	4 pcl
Cucumbers (")	12	Peaches (c/s)	14	Water-melons (loose)	9607
Dates (c/s)	12	Pears (")	246	" " (c/s)	94
Fowl Mash (bgs)	21	Pineapples (c/s)	175	Wheat (bgs)	654
				Yams (c/s)	38

APPENDIX X

The following are the number of driers in each district:

SAVAI'I:

A'opo	-	Patamea	75
Asau	-	Salailua	44
Salelologa	-	Pu'apu'a	64
Tafua	-	Vailoa	25
Taga	-	Vaega	32

UPOLU:

Falealili	-		54
A'ana North	-		30
Tuasivi	-	Faleula	14
Falevao	-	Lauli'i	38
Fi'avea	-	Lalomanu	53
Safata	-		99
Lefaga	-		15
Fagaloa	-		28
Falelatai	-		16
Saleapaga	-	Lotofaga	41
			628

APPENDIX XI

PLANT INTRODUCTIONS - 1961
(See para. 68)

The following is a list of 72 parcels of seeds, plants and cuttings introduced from overseas or collected from local sources within the Territory and registered at Nafanua for study, propagation and later distribution. The first column gives the W.Samoa Department of Agriculture Number, the second the scientific name and family with notes on uses and the third, the common name where known.

WSDA No.	DESCRIPTION AND ORIGIN	FAMILY	COMMON NAME
5100	Nicotiana tabacum L. var VIRGINIA GOLD From N.Z. 30z seeds supplied by Tobacco Research Station. Previous introductions of species many; but first for variety.	Solanaceae	TOBACCO
5101-2	From GUAM, root cuttings collected by Coenen, Asst. P.I. Officer, S.P.C. and received on 31.1.61.		
	5101 Artocarpus altilis (Parkins) Fosberg var. LEAF	Moraceae	BREADFRUIT
	5102 do. var. PALAOA	"	"
	For previous introduction see No.5092*		
5103	From HAWAII - plants grown from seeds given by L.W.Wishard Esq. - received 14 November 1960 entered 31.1.61. Cordia sebestena L. Small evergreen tree with large oval leaves 3-8 in long: and bright orange-red flowers 1-2 in long: ovoid white edible fruits, 1 in long. Desirable ornamental - heartwood useful - many parts medicinal. First introduction.	Boraginaceae	GEIGER TREE

*See Annual Reports for 1960 and previous reports.

WSDA No.	Description	Family	Common Name
5104-111	From E.CAROLINES Stokes Is., and Ponape, two root cuttings each of 8 varieties of Breadfruit collected by J.Coenen Esq. received on 9.2.61, for previous introduction see No.5102.		
	Artocarpus altilis (Parkins) Fosberg	Moraceae	BREADFRUIT
5104	LUKUWAL		
5105	MAI KALAK		
5106	MAI-N-NUNE		
5107	MAI-N-PATAK		
5108	MAI-N-PUT		
5109	MAI TEIT		
5110	MAI-UP		
5111	NUN-MUAL		
5112	From MARSHALL IS. (Majuro) 3, root cuttings of breadfruit - coll. J.Coenen (SPC) received on 3.3.61.		
	Artocarpus altilis (Parkins) Fosberg	Moraceae	BREADFRUIT
	l.n. BUKDOL		
5113	From UPOLU, Apia, seeds supplied by A. George Esq., received 27.3.61.		
	Azadirachta indica A.Juss	Meliaceae	NIM
	Small tree with fine foliage, white small flowers - fragrant. Fruit rounded oblong, yellow with a thin pulp around one seed. Rare in Samoa.		
5114-21	From TRUST TERRITORIES Pacific Islands - Truk - two root cuttings each of eight varieties of Breadfruit collected by J. Coenen (SPC) received 10.4.61. For previous introductions see No.5112		
	Artocarpus altilis (Parkins) Fosberg.	Moraceae	BREADFRUIT
5114	l.n. AEMARON		
5115	" ENIKEN		
5116	" MEIKOCH		
5117	" MICHON		
5118	" NEWOTA		
5119	" NEWOTA		
5120	" OFA		
5121	" WOLUMUR		
5122	From W.AFRICA, Ivory Coast plants from seeds collected by B.E.V.P. received 14th November 1960 and entered in record 25th April 1961. First introduction.		
	Crotolaria retusa L.	Leguminosea	RATTLE POD
	Shrub - flowers yellow and purple; pods to 1.5 in long (Asia). Shade & cover crop.		
5123-8	From UPOLU, Apia - seedling and cuttings from C.Judge C.C.Marsack received 25 April 1961.		
5123	Cinnamomum zeylanicum	Lauraceae	CINNAMON
	The cinnamon tree - spice from bark of sucker shoots.		
5124	Hylocereus undatus (Haw) Britt & Rose	Cactaceae	CEREUS
	A Mexican cactus with very large flowers.		
5125	Bougainvillea spectabilis Willd.	Nyctaginaceae	BOUGAINVILLEA
	Cuttings of three varieties (colours) marked A,B,C. For previous introduction see No.5047.		

WSDA No.	Description	Family	Common Name
	5126 Jatropha podagrica Hook. A succulent from Central America, 1 to 5 ft high, with simple stem much swollen at base. Seeds are poisonous. Leaves nearly round, lobed, 4-10 in. diam. Long stalked, red flowers.	Euphorbiaceae	GOUT STALK
	5127 Quassia amara For previous introduction see No.5098.	Simarubaceae	QUASSIA
	5128 Tamarindus indicus L. Slow growing tree not common in Samoa - wood used for fuel - pod velvety, reddish brown, thick, 2-8 in long - contains suggary syrup - an export from orient and W. Indies.	Leguminosae	TAMARIND TAMALIGI
5129	UPOLU, from Vailele seeds presented by Mrs P.W.H.Kelly received 23.4.61. Ipomoea tuberosa L. Ll. palmately 5-7-lobed, fls yellow white to orange. Capsules brown to 2 in. diam. Has economic potential.	Leguminosae	WOOD-ROSE
5130	UPOLU: From Vaiala seeds received 3 May 1961. Lawsonia inermis L. For previous introduction see No.4704.	Lythraceae	HENNA
5131	GILBERT & ELLICE Group - 2 root cuttings received 5.5.61. Artocarpus altilis (Parkins) Fosberg L.n. MEI.	Moraceae	BREADFRUIT
5132	TOKELAUS IS. 3 root cuttings coll. G.W.Minto Esq., received 15.5.61. For previous introduction see No.5121. Artocarpus altilis (Parkins) Fosberg l.n. ULU ELISE	do.	do.
5133	UPOLU, Apia - seedling received from Chief Judge C.C.Marsack - May 1961 - and planted at Nafanua. Nephelium mutabile Bl. Tree of Java and Borneo. Frt red edible covered with red short spines - white pulp of good flavour. Rare.	Sapindaceae	PULASAN
5134	NEW CALEDONIA - Plants grown from cuttings presented by Miss A. Bastide S.P.C. in June 1959, entered in record on 15 May 1961. Malvaviscus arboreus Cav. Since its first introduction per BEVP (1959) this shrub has gained much popularity with gardeners. Large shrub useful for hedges - flowers like Hibiscus but do not open. Back contains tough fibre.	Malvaceae	CLOCHE D'AMOUE or TURK'S CAP
5135-6	UPOLU, Falealili. Plants collected BEVP received 15 May 1961.		
	5135 Phaius graeffei Reichb. Large herb with broad plicate leaves and succulent stems. Flowers large white with yellow lip.	Orchidaceae	

WSDA No.	Description	Family	Common Name
	5136 Calanthe hololeuca Large ground orchid 3' high or more with abundant white flowers - common in Forest.	Orchidaceae	WHITE-DOVE ORCHID
5167-8	UPOLU, Apia - Plants of two species of Cycas collected B.E.V.P. in 1956, planted at Nafanua and entered in record 15.5.61.		
	5167 Cycas circinalis L. Palm-like tree with single or branched ringed trunk leaves curving smooth; feather-like - 9ft. long. Fruit with nut-like seeds v. poisonous when raw but can be eaten when cooked. Pacific Islands. Rare in Samoa.	Cycadaceae	CYCAD
	5167 Cycas revoluta Thunb. Leaves smaller, narrow leaflets with edges rolled back - used at funerals and ornamentally common in Samoa.	do.	SAGO-PALM CYCAD
5139	NEW ZEALAND, Wellington - plants grown from cuttings gifted by Mrs R. Swanston, Feb. 1959 entered in record 15.5.61.		
	Zygocactus truncatus (Haw) Soham. Ornamental cactus, fls. rose-red, day blooming c. 3 in long.	Cactaceae	CRAB CACTUS
5140-54	UNITED STATES OF AMERICA (& other sources). Seeds of two species donated by U.S.D.A. Plant Introduction Service, received 8th June 1961.		
	5140-5 Luffa acutangala (L) Roscb. 5140 orig. from India 5141 " " " 5142 " " " 5143 " " " 5144 " " Afghanistan 5145 " " India Fruits used as a vegetable. Annual vine heart shaped leaves 4-8 in. long. Fruit 8-24 in. long.	Cucurbitaceae	LOOFAH (edible)
	5146-54 Luffa aegyptica 5146 orig. from Turkey 5147 " " India 5148 " " " 5149 " " " 5150 " " " 5151 " " Guatemala 5152 " " " 5153 " " Belgian Congo 5154 " " India	Cucurbitaceae	LOOFAH
5155	SAVAI'I, from Samata - plants donated by Mr F.Faasuaga received 8 June 1961.		
	Alocasia macrorrhiza (L) Scholt Large herb with heart shaped leaves and edible rhizome. Ornamental var. first record.	Araceae	GOLDEN TAAMU

WSDA No.	Description	Family	Common Name
5156	UPOLU, from Papaloloa - two plants collected by Mr J. Schwenke - received 1 August 1961 and planted at Vailima plot.		
	Artocarpus altilis (Parkins) Fosberg l.n. ULU MANU'A	Moraceae	BREADFRUIT or ULU
	Variety of breadfruit - with good reputation. For previous introduction of sp. see No.5132.		
5157-8	UPOLU, Aleisa, seeds of two varieties collected Mr T. Leupolu received 1st August, 1961.		
	Bixa orellana L.	Bixaceae	ANNATTO or LOA
	5157 var. B. 5158 " C.		
	Unrecorded varieties added to collection, for previous record of species see No.5023 (i.e. var. B).		
5159	FIJI - Department of Agriculture, Principal Ag. Station - cuttings donated and received per Mr H. Treviranus on 5th September 1961.		
	Digitaria decumbens var.	Gramineae	PANGOLA GRASS
	Pasture grass from experimental fields - said to have high protein and yield. For previous introduction see No.4870.		
5160	From NEW ZEALAND, seeds collected BEVP - received 1st December 1961.		
	Cassia bicapsularis L.	Leguminosae	CASSIA
	Shrub with ornamental yellow flowers.		
5161-7	HAWAII, seeds donated by Univ. Hawaii Agric. Extension Service, received per G.Ettershank, Esq.		
	5161 Carica papaya L. - SOLO LINE 8	Caricaceae	SOLO PAPAYA
	For previous introduction see No. 4648.		
	5162 Phaseolus vulgaris L.	Leguminosae	POLE BEAN
	For previous introduction see No. 4692 (sp)		
	5163 Lycopersicum esculentum var. KOLEA-C	Solanaceae	TOMATO
	For previous introdn. see No.4940.		
	5164 Zea mays L. var rugosa Bonof. HAWAIIAN SUGAR		CORN
	For previous introduction this var. see No.46 47.		
	5165 Macadamia ternifolia F.Muell.	Proteaceae	
	5166 Macadamia ternifolia F.Muell.	"	
	For previous introdn. see No.5052.		
	5167 Coffea arabica var. CATURRA	Rubiaceae	COFFEE
	First introduction of this valuable variety. For previous introduction of species see No.5050 and var. No.5048.		
5168-72	SOUTH AFRICA. Seeds of five varieties donated by Gunson's Seeds Pty. Ltd. Klirivier, Transvaal, received 12 December 1961.		
	Ricinus communis	Euphorbiaceae	CASTOR OIL
	5168 var. KAFIM " PACIFIC No.6 " UC 53 " 556 " 1118		
	For previous introduction see No.4757.		

APPENDIX XII

CENSUS OF LIVESTOCK - 1961

With the co-operation of stock-owners and district and village authorities as arranged by the Prime Minister's Department, the Agricultural officer Mr J.H. ten Hove and his staff carried out a census of livestock. Although the figures are not exact, this is the most nearly complete survey to have been carried out at any time.

	DESCRIPTION		TOTAL
A.	BEEF CATTLE:		
	Cows	7,852	
	Bulls	602	
	Steers	2,381	15,422
B.	DAIRY or DUAL PURPOSE CATTLE:		
	Cows	314	314
C.	PIGS:		
	Sows	7,822	
	Boars	4,426	
	Others	1,718	30,067
D.	HORSES:		
	Mares	858	
	Stallions	606	
	Foals	737	
	Geldings	192	2,393
E.	POULTRY:		
	Hens	37,500	
	Roosters	6,632	
	Chickens	31,932	66,064

Appreciation is recorded of the valuable assistance of the staff of the Prime Minister's Department especially of Mr E. Stehlin, M.B.E., the Editor of 'Savali' and the Director of Broadcasting - Mr J. Moore. Without their assistance it is doubtful if the survey could have been carried out in all villages and districts.

APPENDIX XIII

AVELE AGRICULTURAL COLLEGE

CERTIFICATES AND FORM PRIZES 1961

School Prizes

Form V	Dux of College	Taukea Rani
Form IV		Lolagi Visinia
Vorm III		Metai Fa'aifo
Inter-house Sports (Hardy Cup)		James Cook House

Certificate of Agriculture & Animal Husbandry

Taukea Rani	Cook Islands
Vavia Tangarataia	Cook Islands
Kisona Afele	W. Samoa
Afereti Aso	W. Samoa
Nihi Vini	Cook Islands
Hiliketoa M.	Niue
Filiva'a Mageo Jr.	Eastern Samoa
Simalu Ipipi A.	W. Samoa
Ti'iti'i Lemafa	W. Samoa
Matai'a Gagau	W. Samoa
Tuileva Panapa	Eastern Samoa
John Peyroux	Cook Islands
Tumamā Salu	W. Samoa
Tua Rani	Cook Islands
Kulupatau Ikihele	Niue
Tangianau Teono	Cook Islands
Pase'e Lavasi'i	W. Samoa
Toetū Mataio	W. Samoa
Tavina Lealaitafea	W. Samoa
Lloyd Schuster	W. Samoa
Pe'a Aiolupo	W. Samoa
Tanielu Tuala	W. Samoa

Special Prizes

Produce Grading and Inspection: donated by V.A.T. Leavasa:	Afereti Aso
Animal Husbandry: donated by Burns Philp (SS) Co.	Vavia Tangarataia
Head Prefect: donated by Chamber of Commerce:	Pase'e Lavasi'i
Crop Husbandry: donated by Director of Agriculture:	Nihi Vini
Most Improved Student: donated by Mr P.W.H.Kelly:	Tangianau Teono
Best Practical Farm Work: donated by the Planters' Association:	Hiliketoa Mohetuki
Best Farm Diary: donated by the Principal:	Tumamā Salu
The Avele Prize for general excellence: donated by Mr A. Atoa:	Kisona Afele

APPENDIX XIV

STATEMENT OF REVENUE RECEIVED DURING 1961

Sales of Produce, Seed and Plants:		
Nafanua/Vailima	708. 2. 1.	
Togitogiga	120. 5. 6.	
Avele	73.11. 9.	£901.19. 4.
Sales of Chemicals etc:		
Laboratory	4.17. 2.	
Insecticides	3.13. 2.	
Fertilizer	118.14. 7.	
Weedkiller	64.13. 1.	191.18. 0.
Farm Services:		
Fumigation	234.14. 6.	
Spraying services	51.17. 5.	
Other Farm Services	3.15. 0.	
Tractor ploughing	4. 0. 0.	
Cocoa Driers	22. 3. 6.	
Vehicle Hire	536. 3. 8.	852.14. 1.
Inspection Fees:		
Bananas	9,336. 0. 0.	
Cocoa	911. 0. 0.	
Copra	3,508. 0. 0.	13,755. 0. 0.
Licences:		
Cocoa Trading	61. 5. 0.	
Copra "	266.10. 0.	
Copra Processing	220. 0. 0.	547.15. 0.

TOTAL : £15,701.11. 5.

APPENDIX XV

A. **LICENCES ISSUED - 1961:**

Undried Licences	43	£215. 0. 0.
Copra "	178	89. 0. 0.
Cocoa "	189	47. 5. 0.
	410	£351. 5. 0.

B. **SUMMARY OF COURT PROCEEDINGS:**

Copra	72	£218.10. 0.
Cocoa	26	78.10. 0.
Bunchytop	170	305.10. 0.
Rhinoceros Beetle	102	143. 0. 0.
Noxious Weeds	5	3.10. 0.
	375	£749. 0. 0.

5 Court cases dismissed,:
2 Court cases convicted and discharged.